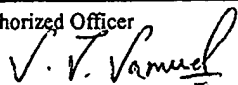


PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FP20044	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/AU2004/000965	International filing date (<i>day/month/year</i>) 16 July 2004	Priority date (<i>day/month/year</i>) 16 July 2003
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ C02F 1/58		
Applicant BUSHWATER HOLDINGS PTY LTD et al		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 3 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p style="margin-left: 20px;">a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 3 sheets, as follows:</p> <div style="margin-left: 40px;"> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> </div> <p style="margin-left: 20px;">b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or table related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <div style="margin-left: 20px;"> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p> </div>	
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Date of submission of the demand 14 February 2005	Date of completion of the report 15 June 2005
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer  SERINEL SAMUEL Téléphone No. (02) 6283 2382

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/AU2004/000965

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language which is the language of a translation furnished for the purposes of:

☐ international search (under Rules 12.3 and 23.1 (b))

☐ publication of the international application (under Rule 12.4)

☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

☐ the international application as originally filed/furnished

☒ the description:

pages 1-14 as originally filed/furnished

pages* received by this Authority on with the letter of

pages* received by this Authority on with the letter of

☒ the claims:

pages as originally filed/furnished

pages* as amended (together with any statement) under Article 19

pages* 15-17 received by this Authority on 08 March 2005 with the letter of 08 March 2005

pages* received by this Authority on with the letter of

☒ the drawings:

pages 1-5 as originally filed/furnished

pages* received by this Authority on with the letter of

pages* received by this Authority on with the letter of

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages

☐ the claims, Nos.

☐ the drawings, sheets/figs

☐ the sequence listing (*specify*):

☐ any table(s) related to the sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages

☐ the claims, Nos.

☐ the drawings, sheets/figs

☐ the sequence listing (*specify*):

☐ any table(s) related to the sequence listing (*specify*):

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/AU2004/000965

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-19	YES
	Claims Nil	NO
Inventive step (IS)	Claims 1-19	YES
	Claims Nil	NO
Industrial applicability (IA)	Claims 1-19	YES
	Claims Nil	NO

2. Citations and explanations (Rule 70.7)

D1 US 6379546
D2 JP 2001009472
D3 US 6132624
D4 JP 2000210696
D5 JP 11277073
D6 JP 11262776
D7 JP 11057748
D8 US 5720882
D9 KR 9508039
D10 WO 94/00391
D11 JP 05-154487
D12 DE 3833039
D13 SE 8802075
D14 DE 3732896

Novelty (N) & Inventive Step (IS)

The amended claims 1-19 meet the criteria set forth in PCT Article 33(2) for novelty and Article 33(3) for inventive step. The prior art published before the priority date does not disclose that the waste water comprises a solid component and a liquid component and that the soluble phosphorus from both components is reacted

Industrial Applicability (IA)

The invention defined in the claims is considered to meet the requirements of Industrial Applicability under Article 33(4) of the PCT because it can be made by, or used in, industry.

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CLAIMS

1. A process for treating waste water which contains soluble phosphorous and which comprises a solid component and a liquid component, the process including the step of
5 reacting soluble phosphorous from the solid and liquid components with a source of magnesium ions under reaction conditions to produce a phosphorous containing precipitate.

2. A process for treating waste water which contains
10 soluble phosphorous, the process including the step of reacting the soluble phosphorous with a source of magnesium ions in the presence of greater than 20ppm ammonia under reaction conditions to produce a phosphorous containing precipitate.

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3. A process as claimed in claim 1 or claim 2 wherein the step of reacting the soluble phosphorous with a source of magnesium ions occurs in the presence of dissolved oxygen.

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4. A process as claimed in any one of the preceding claims wherein the amount of soluble phosphorous in the waste water after the step of reacting the soluble phosphorous is less than 5 mg/L.

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5. A process as claimed in any one of the preceding claims wherein the source of magnesium ions is magnesium oxide.

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6. A process as claimed in claim 5 wherein the source of magnesium ions is magnesium oxide granules.

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7. A process as claimed in claim 6 wherein the magnesium oxide granules have a granular size in the order of 5 to 20mm.

5 8. A process as claimed in claim 6 or claim 7 wherein the process is conducted in a reaction vessel containing a bed of magnesium oxide granules.

9. A process as claimed in claim 5 wherein the source
10 of magnesium ions is magnesium oxide powder.

10. A process as claimed in any one of claims 2-9 wherein an oxygen containing gas is introduced into the waste water to provide a source of dissolved oxygen.

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11. A process as claimed in claim 10 wherein the oxygen containing gas is air.

12. A process as claimed in any one of the preceding
20 claims wherein the phosphorous containing precipitate is a magnesium ammonium phosphate precipitate.

13. A process as claimed in any one of the preceding claims wherein the precipitate is struvite.

25

14. A process for treating waste water which contains soluble phosphorous and which comprises a solid component and a liquid component, the process including the step of reacting soluble phosphorous from the solid and liquid
30 components under reaction conditions to form a magnesium ammonium phosphate precipitate.

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15. A process for treating waste water which contains soluble phosphorous, the process including the step of reacting soluble phosphorous in the presence of greater than 20 ppm ammonia under reaction conditions to form a magnesium ammonium phosphate precipitate.

16. A treatment plant for treating waste water from a residential property which contains soluble phosphorous and which comprises a solid component and a liquid component, the treatment plant comprising means for reacting soluble phosphorous from the solid and liquid components of the waste water with a source of magnesium ions under reaction conditions to produce a phosphorous containing precipitate.

17. A treatment plant for treating waste water from a residential property which contains soluble phosphorous, the treatment plant comprising means for reacting the soluble phosphorous with a source of magnesium ions in the presence of greater than 20 ppm ammonia under reaction conditions to produce a phosphorous containing precipitate.

18. A treatment plant as claimed in claim 16 or claim 17 wherein the treatment plant is located on or adjacent to the residential property.

19. A process substantially as hereinbefore described with reference to the accompanying drawings and/or example.